

## Trends of the Periodic Table Atomic Sizes on the table and Atoms vs. Ions in size

### ANSWERS

Why do atoms get bigger moving down a group and get smaller moving across the periods? Going down a group they add orbitals. Going across a period they add proton/electron pairs, which have a stronger attraction towards the nucleus. Noble gases are the smallest in each period because they have THE MOST PROTONS PER ORBITAL of all atoms in one period.

name	symbol	atomic #	electron configuration	charge	which is bigger?
sulfur	S	16	2-8-6	neutral	anions are slightly bigger than their atoms
sulfur ion	S <sup>-2</sup>	16	2-8-8	-2	
aluminum	Al	13	2-8-3	neutral	cations are much smaller than their atoms
aluminum ion	Al <sup>+3</sup>	13	2-8	+3	
calcium	Ca	20	2-8-8-2	neutral	cations are much smaller than their atoms
calcium ion	Ca <sup>+2</sup>	20	2-8-8	+2	
cesium	Cs	55	2-8-18-18-8-1	neutral	cations are much smaller than their atoms
cesium ion	Cs <sup>+1</sup>	55	2-8-18-18-8	+1	
lithium	Li	3	2-1	neutral	cations are much smaller than their atoms
lithium ion	Li <sup>+1</sup>	3	2	+1	
oxygen	O	8	2-6	neutral	anions are slightly bigger than their atoms
oxygen ion	O <sup>-2</sup>	8	2-8	-2	
magnesium	Mg	12	2-8-2	neutral	cations are much smaller than their atoms
magnesium ion	Mg <sup>+2</sup>	12	2-8	+2	
nitrogen	N	7	2-5	neutral	anions are slightly bigger than their atoms
nitrogen ion	N <sup>-3</sup>	7	2-8	-3	
bromine	Br	35	2-8-18-7	neutral	anions are slightly bigger than their atoms
bromine ion	Br <sup>-1</sup>	35	2-8-18-8	-1	
potassium	K	19	2-8-8-1	neutral	cations are much smaller than their atoms
potassium ion	K <sup>+1</sup>	19	2-8-8	+1	
fluorine	F	9	2-7	neutral	anions are slightly bigger than their atoms
fluorine ion	F <sup>-1</sup>	9	2-8	-1	